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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/211,677 12/14/98 LEE

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EXAMINER

WM01/0214

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ART UNIT

PAPER NUMBER

2674

DATE MAILED:

02/14/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/211,677

Applicant(s)

LEE, HYUN CHANG

Examiner

Kevin M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2000.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

DETAILED ACTION

1. The amendment filed on 11/14/2000 is entered. However, claims 1-9 have been rejected in view of the newly discovered prior art of Yasui et al. (5,784,039) and Suzuki et al. (5,587,722).

Information Disclosure Statement

2. The information disclosure statement filed 11/30/2000. It has been placed in the application file, the information referred to therein has been considered as to the merits.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

4. Claims 1 and 7-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Yasui et al. (U.S. Patent No. 5,784,039).

5. As to claim 1, Yasui et al. teaches an active matrix liquid crystal display apparatus which includes a liquid crystal pixels L_{ij} (fig.1B, col. 4, lines 35-36) having switching transistors Q_{ij} and $Q_{i+1,j}$

A source driver 2 (data driver) has connected thereto n column of source buses S_1-S_n corresponding to the claimed a plurality of data signal lines each connected to the first electrode associated with any one of the transistors (fig.1A, col. 4, lines 31-32).

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A gate driver 3 (shift register) has connected thereto $m+1$ rows of gate buses G_1 - G_{m+1} corresponding to the claimed a plurality of gate signal line each connected to the gate electrode associated with any one of the transistors (fig.1A, col.4, lines 32-33).

The gate driver 3 supplied the gate buses G_1, G_2, \dots, G_{m+1} one after another with pulse-like scanning (referred to also as gate bus drive voltages or simply as gate voltage) voltages $V_{G1}, V_{G2} \dots V_{G_{m+1}}$ (col. 4, lines 53-56). By this, TFTs on each row are sequentially selected and turned ON is a diagram showing an equivalent circuit of the pixel in one mesh in Fig.1B (col. 4, lines 60-62).

In the subsequent period $t_0 < t < t_1$ the TFT on the i -th row is turned ON by the select pulse P_g and new data is written by the source voltage V_s (Fig.3A, col. 6, lines 1-3). In the period $t_1 < t < t_2$, since the TFT on the i -th row is turned OFF with $V_s - dV_p$ (col. 6, lines 45-47).

6. As to claims 7-9, Yasui et al. teaches a method of driving an active matrix liquid crystal display apparatus which in the subsequent period $t_0 < t < t_1$ the TFT on the i -th row is turned ON by the select pulse P_g and new data is written by the source voltage V_s (Fig.3A, col. 6, lines 1-3). In the period $t_1 < t < t_2$, since the TFT on the i -th row is turned OFF with $V_s - dV_p$ (col. 6, lines 45-47). Accordingly, gate driver 3 corresponds to the shift register as claimed.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasui et al. in view of Suzuki et al.

9. Yasui et al. teaches all of the claimed limitations of claim 1, except for the first gate voltage drop prior to exciting of the successive gate signal lines, exponentially, linearly and stepwise.

However, Suzuki et al. teaches a related wave form display in which the voltage shift of the video signals by shaping a fall of the gate pulses smoothly or step-wisely. The shaping of the gate pulses can be achieved by contriving the construction of the vertical scanning circuit. In this case, the modification may be added to the circuit portion formed within the substrate of the active matrix liquid crystal display device, or the portion of the external circuit may be adjusted. However, in the case that the shaping of the gate pulses is carried out in the portion of the external circuit, the smooth shaping of a fall of the gate pulses is more simplified in terms of the circuit and is more preferable in the controllability as compared with the step-wise shaping thereof.

It would have been obvious to utilize the X and Y driver circuits taught by Suzuki et al. for the S and G driver circuits disclosed in the active matrix liquid crystal display apparatus of Yasui et al. because this would improve the applying of the gate voltage (col. 2, lines 28-47 of Suzuki).

10. Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

11. This action is made FINAL, necessitated by applicant's amendment.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892 form.

13. Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 11/30/2000 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609(B)(2)(i). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Nguyen whose telephone number is 703-305-6209. The examiner can normally be reached on MON-FRI from 9:00-5:00 with alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard A Hjerpe can be reached on 703-305-4709. The fax phone

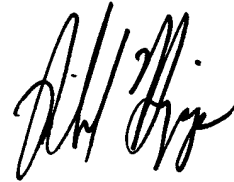
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numbers for the organization where this application or proceeding is assigned are 703-308-6606 for regular communications and 703-308-6606 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

Kevin M. Nguyen
Examiner
Art Unit 2674

KN
January 31, 2001

A handwritten signature in black ink, appearing to read 'R. Hjerpe', is written over a rectangular stamp.

RICHARD HJERPE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600